

Autore

Dott. Bolognesi Tommaso

CNR Ist. Scienza e Tecnologie dell' Informazione "A. Faedo" Isti - Pisa

Titolo:

Challenging the Turing-universe hypothesis

Abstract:

The idea of an algorithmic universe is often associated with cellular automata, a model in which all locations are updated synchronously, but alternative, non-synchronous models can be considered; in fact, one of the boldest forms of the computational universe conjecture suggests that the giant network of nodes representing our universe might be updated by local and sequential operations, as in Turing machines or graph rewrite systems. In this talk we challenge this 'Turing-universe' hypothesis by comparing and reconciling a cellular automaton-based and a Turing machine-based representation of an elementary physical phenomenon -- wave propagation -- under the unifying notion of causal set.